## WHAT IS CLAIMED IS:

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- 1. A semiconductor device comprising:
  - a gate electrode formed over a substrate;
  - a gate insulating film formed over the gate electrode;
- a semiconductor film comprising silicon formed over the gate electrode with the gate insulating film interposed therebetween, said semiconductor film including a channel formation region; and

source and drain regions comprising silicon formed on said semiconductor film,

wherein a peak position of a Raman spectrograph of said semiconductor film is shifted to a lower wavenumber side from 520 cm<sup>-1</sup>.

- 2. The semiconductor device according to claim 1 wherein said gate electrode comprises molybdenum.
- 3. The semiconductor device according to claim 1 wherein said gate insulating film comprises silicon oxide.
  - 4. A semiconductor device comprising:
    - a gate electrode formed over a substrate;
    - a gate insulating film formed over the gate electrode;
- a semiconductor film comprising silicon formed over the gate electrode with the gate insulating film interposed therebetween, said semiconductor film including a channel formation region; and

source and drain regions comprising silicon formed on said semiconductor film,

wherein a peak position of a Raman spectrograph of said semiconductor film is shifted to a lower wavenumber side from 520 cm<sup>-1</sup> and said semiconductor film has a distortion in the lattice.

5. The semiconductor device according to claim 4 wherein said gate electrode comprises molybdenum.

- 6. The semiconductor device according to claim 4 wherein said gate insulating film comprises silicon oxide.
  - 7. A semiconductor device comprising:

- a gate electrode formed over a substrate;
- a gate insulating film formed over the gate electrode;
- a semiconductor film comprising silicon formed over the gate electrode with the gate insulating film interposed therebetween, said semiconductor film including a channel formation region; and

source and drain regions comprising silicon formed on said semiconductor film,

wherein a peak position of a Raman spectrograph of said semiconductor film is shifted to a lower wavenumber side from 520 cm<sup>-1</sup> and said semiconductor film has a distortion in the lattice, and the semiconductor film no barrier against carriers at grain boundaries.

- 8. The semiconductor device according to claim 7 wherein said gate electrode comprises molybdenum.
- 9. The semiconductor device according to claim 7 wherein said gate insulating film comprises silicon oxide.
- 10. The semiconductor device according to claim 1 wherein said gate insulating film comprises silicon oxide containing fluorine.
- 11. The semiconductor device according to claim 4 wherein said gate insulating film comprises silicon oxide containing fluorine.
- 12. The semiconductor device according to claim 7 wherein said gate insulating film comprises silicon oxide containing fluorine.